

## Fall 2021 Five-Year Department Strategic Plan

<b>Department or Program:</b>	<b>BIOLOGICAL SCIENCES</b>
<b>Unit:</b>	<b>College of Liberal Arts and Sciences</b>
<b>Date:</b>	<b>December 2021</b>

<b>Department/Program Mission (Optional):</b>	The mission of the Department of Biological Sciences is to build an inclusive academic community of scientists and students collaborating to advance discovery, innovation, and the application of scientific knowledge.
<b>Department Vision (Optional):</b>	Educate, Collaborate, Discover

<b>Goal 1:</b>	To provide an excellent education to a diverse student body (Align with CLAS Goal 1 and Goal 2; Align with University Goal 1)	
	<b>Objective 1.1</b>	Increase scientific literacy of all students and trainees
		<b>Action 1.1.1</b>
<b>Action 1.1.2</b>	Increase capacity for teaching and training of declared undergraduate majors and minors	

		<b>Action 1.1.3</b>	Provide competencies and skills needed for students to be competitive for 21 <sup>st</sup> century careers in STEM
		<b>Measures and Performance Outcomes (for the Objective)</b>	<ol style="list-style-type: none"> <li>1. Advocate to obtain professional advisor to handle advisees thus allow extant faculty to teach additional 8 course sections per semester to meet increasing demand</li> <li>2. Establish a plan and advocate for the addition of 10 faculty to provide expertise to meet increased demand for required undergraduate and graduate courses and improve student:faculty ratios and improve student learning</li> <li>3. Reconfigure 2140L to an introductory series of two labs for incoming majors to provide important foundational knowledge, align lab content with lecture content, and better poise students for early progress and success</li> <li>4. Assess and re-organize undergraduate and graduate curricula to incorporate 5 CUREs or other hands-on course-based, internship-based, or research-based learning over the 5 year period</li> <li>5. Submit at least two proposals to provide funding to initiate and implement at least one hands-on learning lab and credential “badge”- associated course over the 5 year period</li> <li>6. Use the university mandated unit equity audit and work with Biological Sciences DEI committee to assess and implement appropriate changes that will improve educational success of diverse body of students</li> <li>7. Assess, create a plan, and implement evidence-based inclusive teaching strategies into undergraduate and graduate curricula</li> </ol>
		<b>Costs:</b>	With existing resources the department will assess and plan for all outcomes listed. With existing resources the department will plan and approve curriculum changes. The planning groups will determine what additional resources might be needed for implementation. With existing resources the department will create draft justifications for advisor and new faculty to present to university. Approval and hiring will require additional resources from the university.

	<b>Objective 1.2</b>	Foster scientific inquiry among all students
	<b>Action 1.2.1</b>	Develop and support opportunities for interested students and trainees to expand their academic and scientific experiences
	<b>Action 1.2.2</b>	Increase quality of scientific training to improve state and national rankings of undergraduate and graduate programs
	<b>Action 1.2.3</b>	Increase opportunities for students to pursue intercultural experiences by working more intentionally with the Office of International Programs to increase the number of international experiences by DBS undergraduate and graduate students.
	<b>Measures and Performance Outcomes (for the Objective)</b>	<ol style="list-style-type: none"> <li>1. Assess and re-organize undergraduate and graduate curricula to incorporate 5 CUREs or other hands-on course-based, internship-based, or research-based learning experiences over the 5 year period</li> <li>2. Submit proposals to obtain funding to initiate and implement at least one hands-on learning lab and credential “badge”- associated course over the 5 year period</li> <li>3. Track annually Biological Sciences state and national rankings and work with Undergraduate, Graduate, Advisory Committees to examine metrics used to generate rankings and strategies to improve them</li> </ol>
	<b>Costs</b>	With existing resources the department will assess and plan for all outcomes listed. With existing resources the department will plan and approve curriculum changes. The planning groups will determine what additional resources might be needed for implementation.

<b>Goal 2:</b>	To expand body of scientific knowledge and increase national prominence in research (Align with CLAS Goal 2; Align with University Goal 2)
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	<b>Objective 2.1</b>	Recruit, nurture and retain faculty, staff, and students to integrate teaching and collaborative research
	<b>Action 2.1.1</b>	Advocate to the university to hire 10 new faculty to cover needs in research programs of the department
	<b>Action 2.1.2</b>	Facilitate grant and fellowship writing and submission opportunities of trainees and faculty
	<b>Action 2.1.3</b>	Promote and incentivize expansion of integration of teaching and research efforts
	<b>Action 2.1.4</b>	Perform scientific research that works to improve state and national rankings of programs
	<b>Measures and Performance Outcomes (for the Objective)</b>	<ol style="list-style-type: none"> <li>1. Submit internal and external funding proposals to initiate and sustain a minimum of 2 hands-on course-based, internship-based, or learning experiences over the 5 year period</li> <li>2. Track yearly the added number of up to 10 new faculty and assess what added expertise and expanded research programs competitive for external funding have been gained</li> <li>3. Use annual report data of lab groups and trainees to track numbers of trainees, publications, increased research activities and work with Undergraduate, Graduate, and Advisory committees on strategies to continue expansion</li> <li>4. Use faculty surveys to develop metrics and strategies that effectively incentivize faculty to increase efforts in integration of teaching and research and expansion of trainee numbers to lab groups</li> <li>5. Track annually Biological Sciences state and national rankings and work with Undergraduate, Graduate, Advisory Committees to examine metrics used to generate rankings and strategies to improve them</li> </ol>
	<b>Costs</b>	With existing resources the department will track and assess all outcomes listed. With existing resources the department will create conclusions on the data and provide guidance to future strategies that promote the goals.

			With existing resources the department will create funding proposals for new learning experiences. Final approval or implementation of these may require additional resources from the university.
	<b>Objective 2.2</b>	Recruit, nurture and retain faculty, staff, and students to excel nationally recognized research programs collaborative research	
		<b>Action 2.2.1</b>	Achieve \$10M/year in extramural funding including individual, training, program, and equipment grants
		<b>Action 2.2.2</b>	Incentivize faculty to submit and obtain external funding to support research programs
		<b>Action 2.2.3</b>	Foster and support interdisciplinary collaborations and scholarship that align with the university strategic plan to become research intensive and in Integrated Health and Environmental research that integrates core research foci of DBS including Genome Integrity and Cancer Initiative, Biomolecular Structure Dynamics and Function, Host-Microbe Interactions in Health Disease and Environment, and Climate Change with other campus units (Chemistry & Nanoscale Science; Math & Computational; Physics & Optical Sciences; Geography and Earth Sciences; Bioengineering)
		<b>Measures and Performance Outcomes (for the Objective)</b>	<ol style="list-style-type: none"> <li>1. Use faculty surveys to develop metrics and strategies that effectively incentivize faculty to submit grants including individual, training, program, and equipment grants</li> <li>2. Use faculty surveys to develop metrics and strategies that effectively incentivize faculty to participate in Catalyst or other grant writing workshops</li> <li>3. Engage and mentor new and junior faculty to foster a sense of grantsmanship, external funding, and shared community to participate in multi-PI and interdisciplinary research, training, and equipment grants</li> <li>4. Annually assess extramural funding submissions and successful grants including individual, training, program, and equipment grants and work with Vice Chair of Research and Catalyst Program to develop and foster increased numbers</li> </ol>

			<p>5. Create working groups based around core research foci to foster and incentivize faculty to submit at least one internal or external program or grant each year over the 5 year period</p> <p>6. Seek internal or external funding to support events, colloquia, workshops, consultants, and collaborators that will lead to interdisciplinary extramurally funded research and training</p> <p>7. Add one new interaction, workshop, or related event each year to engage and bring together appropriate stakeholders to foster development, writing and submission of interdisciplinary research training, program, and equipment grants over the 5 year period</p>
		<b>Costs</b>	<p>With existing resources the department will track and assess all outcomes listed. With existing resources the department will generate conclusions on the data and provide guidance to future strategies that promote the goals. With existing resources the department will create funding proposals for new events. Final approval or implementation of these may require additional resources from the university.</p>

<b>Goal 3:</b>	To engage community partners (Align with CLAS Goal 3; Align with University Goal 3)		
	<b>Objective 3.1</b>	Increase collaboration with other on-campus programs	
		<b>Action 3.1.1</b>	Develop and implement new interdepartmental/interdisciplinary learning opportunities for undergraduate and graduate student and post-doctoral fellow trainees

		<b>Action 3.1.2</b>	Collaborate, submit and obtain new interdisciplinary extramurally-funded grants for research and training
		<b>Action 3.1.3</b>	Expand research that aligns with the university strategic plan to become research intensive and Integrated Health and Environmental research that integrates core research foci of DBS including Genome Integrity and Cancer Initiative, Biomolecular Structure Dynamics and Function, Host-Microbe Interactions in Health Disease and Environment, and Climate Change with other campus units (Chemistry & Nanoscale Science; Math & Computational; Physics & Optical Sciences; Geography and Earth Sciences; Bioengineering)
		<b>Measures and Performance Outcomes (for the Objective)</b>	<ol style="list-style-type: none"> <li>1. Track development of new and added cross-listed courses between Biological Sciences and other departments/units on campus</li> <li>2. Assess each year what courses have been added and number of SCH associated with each</li> <li>3. Add one new interaction, workshop, or related event each year to engage members of research foci and appropriate related units over the 5 year period</li> <li>4. Assess yearly the number of activities that engage the Health and Environmental Research foci and other department units and work with Graduate, Advisory, and Research foci leaders to determine how to increase interactions</li> <li>5. Seek internal or external funding to support events, colloquia, workshops, consultants, and collaborators that will lead to interdisciplinary extramurally funded research and training</li> </ol>
		<b>Costs</b>	With existing resources the department will track and assess all outcomes listed. With existing resources the department will generate conclusions on the data and provide guidance to future strategies that promote the goals. With existing resources the department will create funding proposals for new events. Final approval or implementation of these may require additional resources from the university.

	<b>Objective 3.2</b>	Increase collaboration with off-campus regional and national partners
	<b>Action 3.2.1</b>	Mobilize departmental resources to create educational opportunities and networking opportunities for the community
	<b>Action 3.2.2</b>	Leverage position as the only PhD in Biology program in Western Carolina and partner with regional organizations to provide internship and professional development opportunities for undergraduate and graduate students and post-doctoral fellow trainees
	<b>Action 3.2.3</b>	Partner with local organizations and partners to provide pipeline of graduates for future employment
	<b>Measures and Performance Outcomes (for the Objective)</b>	<ol style="list-style-type: none"> <li>1. Double number of events that faculty and students engage in with the regional community and use social media to document and describe them over the 5 year period</li> <li>2. Add 10 new available internships or off-campus professional development opportunities or employment for trainees over the 5 year period</li> <li>3. Add recruiting events and advertising or media to increase visibility to the Western portion of the state</li> <li>4. Assess yearly the number of activities that engage the community and work with Undergraduate, Graduate, Advisory, and DEI committees to determine how to increase interactions</li> <li>5. Assess quality and value of opportunities and events that engage the community through post-engagement feedback surveys and work with Undergraduate, Graduate, Advisory, and DEI committees to determine how to increase interactions</li> <li>6. Track the number and quality of off-site internship experiences through post-engagement feedback surveys</li> </ol>
	<b>Costs</b>	With existing resources the department will create baseline data and then track and assess all outcomes listed. With existing resources the department will generate conclusions on the data and provide guidance to



			future strategies that promote the goals. With existing resources the department will create funding proposals for new events. Final approval or implementation of these may require additional resources from the university.
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<b>Goal 4:</b>	To foster a departmental culture that promotes equity, engagement and mutual respect and professionalism (Align with CLAS Goal 4; Align with University Goal 4)		
	<b>Objective 4.1</b>	Foster a professional, productive and inclusive work and learning environment	
		<b>Action 4.1.1</b>	Promote professional development and provide mentorship of faculty and staff
		<b>Action 4.1.2</b>	Adopt workplace and classroom policies and documents that incorporate diversity, equity, and inclusion
		<b>Measures and Performance Outcomes (for the Objective)</b>	<ol style="list-style-type: none"> <li>1. Formalize individualized mentoring of junior faculty including performance expectations and metrics to be reviewed each year</li> <li>2. Develop and implement departmental “climate survey” for formal annual review</li> <li>3. Track reports, concerns, feedback that policies are not adhered to for review each year and consider solutions or remediation</li> <li>4. Adopt common language for course syllabi including individualized instruction syllabi to embrace DEI</li> <li>5. Adopt online training modules on diversity equity and inclusion practices into extant departmental laboratory/new student faculty trainings</li> </ol>
		<b>Costs</b>	With existing resources the department will create baseline data and then track and assess all outcomes listed. With existing resources the department

			will generate conclusions on the data and provide guidance to future strategies that promote the goals.
	<b>Objective 4.2</b>	Foster community between faculty and students	
		<b>Action 4.2.1</b>	Convene, expand the scope, and prominence of the annual Biological Sciences Symposium bringing together all members of the DBS community
		<b>Action 4.2.2</b>	Hold events that connect, promote, and celebrate both student and faculty success
		<b>Action 4.2.3</b>	Use physical space and social media to celebrate members of departmental community
		<b>Measures and Performance Outcomes (for the Objective)</b>	<ol style="list-style-type: none"> <li>1. Convene the Annual Biological Sciences Symposium and invite extended community and stakeholders in the department</li> <li>2. Hold at least two student/lab meet and greet events each year to expose students to array of interactive opportunities</li> <li>2. Acknowledge success of undergraduate and graduate students at least twice a year at events open to departmental community</li> <li>3. Increase postings and rotate multiple times per year on physical walls, website, and on digital news boards within departmental physical space about success of students and faculty</li> <li>4. Track number and types of events per year that include both students and faculty annually and work with Undergraduate, Graduate, Advisory, and DEI committees determine how to increase interactions</li> <li>5. Track number and types of students engaged in collaboration, research, community events with faculty annually and work with Undergraduate, Graduate, Advisory, and DEI committees to determine how to increase interactions</li> </ol>
		<b>Costs</b>	With existing resources the department will create baseline data and then track and assess all outcomes listed. With existing resources the department

			will generate conclusions on the data and provide guidance to future strategies that promote the goals.
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